

(12)

EUROPEAN PATENT APPLICATION

(21) Application number: 84305084.0

(51) Int. Cl.⁴: C 03 B 7/20

(22) Date of filing: 26.07.84

(30) Priority: 13.08.83 GB 8321859

(43) Date of publication of application:
06.03.85 Bulletin 85/10

(84) Designated Contracting States:
DE FR IT

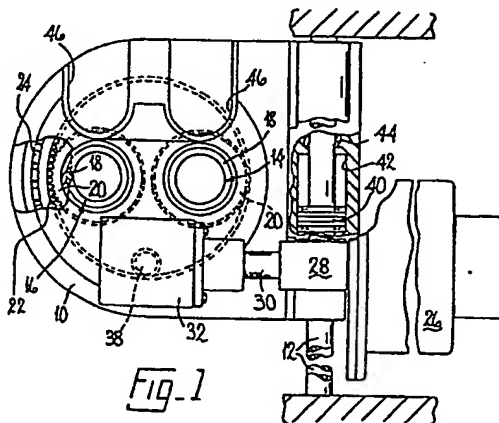
(71) Applicant: EMHART INDUSTRIES, INC.
426 Colt Highway
Farmington Connecticut 06032(US)

(72) Inventor: Fenton, Frank Alan
72 Sandall Park Drive
Wheatley Doncaster South Yorkshire(GB)

(74) Representative: Drury, Peter Lawrence et al,
P.O. Box 88 Ross Walk Belgrave Road
Leicester LE4 5BX(GB)

(54) A gob distributor for a glassware manufacturing machine.

(57) The distributor comprises a scoop (14; 114) which can be aligned in turn with the sections of the machine to deliver a gob to each section in turn. Positioning means (20, 22; 120, 122) is operable to turn the scoop to align it and comprises an externally-toothed ring-shaped gear (20; 120) on which the scoop is mounted, an internally-toothed ring shaped gear (22; 122) which surround and drives the externally-toothed gear, and a servo-motor (26; 126) which drives the internally-toothed gear through selected angles to align the scoop. Further scoops (16; 115, 116) may also be driven by the same internally-toothed gear and servo-motor.



1.

1 A gob distributor for a glassware
 manufacturing machine

 This invention is concerned with a gob distributor
for a glassware manufacturing machine of the individual
5 section type operable to deliver a required number of gobs
of molten glass to each section of the machine in a selected
sequence.

 A glassware manufacturing machine of the individual
section type comprises a plurality of individual glass
10 moulding units called "sections". The sections are mounted
on a common frame to be fed with glass from a common feeder
and to feed their output to a common conveyor. Each section
can be arranged to operate in either a single gob mode, in
which it receives one gob of molten glass at a time, moulds
15 it into a parison in a parison mould thereof, transfers the
parison to a blow mould, blows the parison into an article
in the blow mould, and transfers the article to the conveyor,
or in a double gob mode in which two gobs received simultane-
ously are moulded in two parison moulds and subsequently in
20 two blow moulds. It is also possible for the sections to
work in triple or even quadruple gob modes, although which
modes are possible depends on the size of the articles being
manufactured. Between the feeder and the sections is the
gob distributor of the machine which receives successive gobs
25 from the feeder and distributes them to the sections in a
selected sequence, the distributor receiving and delivering
simultaneously the required number of gobs for the mode in
which the sections are working. The sections then operate
on the gobs in timed relationship to one another starting
30 in the order in which they receive gobs.

 A conventional gob distributor comprises one or
more gob-directing scoops (one for each gob to be delivered
simultaneously). Each scoop is in the form of a trough

2.

1 which is curved in a vertical plane and has an upper end
which is arranged to receive gobs falling from an orifice of
a forehearth feeder and a lower end arranged to be aligned
with a gob guide of any of the sections so that the scoop
5 delivers a gob to the gob guide. Each section has one gob
guide for each gob that it receives simultaneously which is
arranged to guide a gob delivered thereto to a parison mould
of the section. The lower end of each scoop is aligned with
the guides by turning the scoop about a vertical axis passing
10 through its upper end by operating turning means of the
distributor in timed relationship with the fall of gobs from
the orifice.

The turning means of a conventional gob dis-
tributor comprises an externally-toothed ring-shaped gear
15 associated with each scoop, the scoop being mounted on the
gear and passing therethrough and the gear being arranged to
turn about the vertical axis of the scoop. The turning means
also comprises a rack having teeth meshed with teeth of each
of the gears, a cam roll secured to the rack, a plate cam
20 on the edge of which the cam roll runs and whose shape
determines the selected sequence of the sections, drive means
which constantly rotates the cam, and spring means which
urges the rack against the cam.

The turning means of a conventional gob distributor
25 is very bulky and therefore is difficult to position in an
operative position in which the upper end of each scoop is
vertically below a feeder orifice. Indeed, it has some-
times been necessary to reposition the entire machine to
enable a satisfactory operating position to be achieved.

30 It is an object of the present invention to
provide a less bulky gob distributor than the conventional
gob distributor described above.

The invention provides a gob distributor for a
glassware manufacturing machine of the individual section type

35

3.

1 operable to deliver at least one gob of molten glass to
each section of the machine in turn in a selected sequence,
each section having a gob guide for each gob delivered
thereto in the sequence arranged to guide a gob delivered
5 thereto to a mould of the section, the distributor comprising
at least one gob-delivering scoop having an upper end arranged
to receive a gob and a lower end arranged to be aligned with
a gob guide of any of the sections so that the scoop delivers
a gob received thereby to the gob guide, and positioning
10 means operable to turn the scoop about a vertical axis passing
through the upper end thereof thereby aligning the lower end of the
scoop with the gob guides, characterised in that the positioning means
comprises an externally-toothed ring-shaped gear on which the scoop
is mounted, the scoop passing through the gear and the gear
15 being arranged to turn about the vertical axis of the scoop
to align the lower end of the scoop with the gob guides, an
internally-toothed ring-shaped gear through which the scoop
passes and which is arranged to turn about a vertical axis
to drive the externally-toothed gear about its vertical
20 axis, and a servo-motor arranged to turn the internally-
toothed gear about its vertical axis through selected angles
so that the lower end of the scoop is aligned with a gob
guide of each section in turn in the selected sequence.

A compact construction is achieved in a gob
25 distributor according to the last preceding paragraph so
that the distributor can be readily positioned. Where two
gobs are to be delivered simultaneously to a section, an
advantageous compact construction is achieved if the
distributor comprises a further gob-directing scoop mounted
30 on an externally-toothed gear which is meshed with the
internally-toothed gear to be driven thereby to deliver a
further gob to each section in the selected sequence.
Where three gobs are to be delivered simultaneously, an

4.

1 advantageous compact construction is also achieved if the distri-
butor comprises a third gob-directing scoop, the third
scoop being between the other two scoops and being mounted
on an externally-toothed ring-shaped gear, and the externally-
5 toothed gear on which the third scoop is mounted is driven
by an idler gear which is driven by a drive gear of the
internally-toothed gear.

10 . The lack of bulk of a gob distributor according
to the last preceding paragraph but one makes it practical
to provide moving means operable in the operation of the
machine to move the or each scoop, the gears and the servo-
motor between a first position thereof in which the upper
end of the or each scoop is vertically below a gob-releasing
orifice of a feeder forehearth and a second position there-
15 of in which the upper end of the or each scoop is not
vertically below such an orifice. In this case, it is
advantageous if the distributor also comprises an inter-
ceptor blade associated with the or each scoop and movable
with the scoop by the operation of the moving means, the
20 interceptor blade being effective in the second position
to intercept a gob falling from the orifice and direct it
into a cullet chute. This arrangement is inherently more
safe than in the conventional distributor described above,
since, in the event of a section breaking down, the
25 distributor can be moved out-of-the-way when a gob would
otherwise be delivered to that section. In the conventional
distributor, the scoop aligns with the broken down section
but an interceptor prevents a gob from entering the scoop.
Even though the interceptor is intended to be fail safe,
30 there is a remote possibility of a gob being delivered to
a broken down section which would endanger anyone repairing
that section. An interceptor may be utilised in con-
junction with moving the distributor for even greater safety.

1 The invention also provides a method of
distributing gobs to the sections of a glassware manu-
facturing machine of the individual section type, characterised in that
the method comprises positioning a gob distributor according to the last
5 preceding paragraph but two in an operative position such that
the upper end of each scoop of the distributor is vertically
below an associated feeder forehearth orifice, operating
the positioning means of the distributor to align the
lower end of each scoop with a gob guide of each section
10 in a selected sequence so that each scoop directs successive
gobs falling from its associated orifice to the sections in
turn, and, when one of the sections is inoperative, moving
the distributor from its operative position, after each
scoop has delivered a gob to the section immediately pre-
15 ceding the inoperative section in the sequence, to a
position in which the upper end of each scoop is not verti-
cally below its associated orifice so that the next gob is
not delivered to the inoperative section, and returning the
distributor to its operative position after a gob has
20 fallen from the orifice, so that the next gob is delivered
to the section immediately following the inoperative
section in the sequence.

With the conventional gob distributor described
above as re-programming involves changing the cam, it is
25 not possible to re-programme the distributor to operate
with one less section should one section suffer a prolonged
breakdown. A gob distributor in which this is possible is
described in U.S. Patent Specification No. 4357157 which
describes a distributor with two scoops each of which is
30 mounted on a vertically-extending shaft. Each shaft is
turned by an individual servo-motor so that re-programming
is possible by changing the control signals to the servo-
motors. Re-programming is possible with a distributor as
described in the last preceding paragraph but three and that
35 distributor has only one servo-motor instead of one per scoop.

6.

1 Although U.S. Specification 4357157 suggests that one servo-
motor can be used to turn two scoops, it does not indicate
how this can be achieved nor is it clear whether the arrange-
ment described can be used with three scoops.

5 A gob-distributor according to the last preceding
paragraph but four has the further advantages that the
externally and internally toothed gears can be contained in
an oil bath reducing maintenance requirements and that, in
the event of an emergency shut-down of the machine, the
10 distributor can be rapidly moved to an out-of-the-way
position.

There now follows a detailed description, to be
read with reference to the accompanying drawings, of two
gob distributors and a method of distributing gobs which
15 are illustrative of the invention. It is to be understood
that the illustrative distributors and method have been
selected for description by way of example and not of
limitation of the invention.

In the drawings:

20 Figure 1 is a plan view of the first illustrative
gob distributor;

Figure 2 is a side elevational view, with parts
broken away to show the construction, of the first illustra-
tive gob distributor;

25 Figure 3 is a diagrammatic view of the gears of
the first illustrative gob distributor;

Figure 4 is a front elevational view of the
first illustrative gob distributor on a smaller scale than
Figures 1 and 2;

30 Figure 5 is a plan view of the second illustrative
gob distributor;

Figure 6 is a side elevational view, on a
larger scale than Figure 5, of the second illustrative gob
distributor; and

35

7.

1 Figure 7 is a diagrammatic view of the gears of
the second illustrative gob distributor.

 The first illustrative gob distributor is for a
glassware manufacturing machine of the individual section
5 type and is operable to deliver two gobs of molten glass to
each section in turn in a selected sequence. Each of the
sections is of conventional construction and has two gob
guides, one for each gob, each arranged to guide a gob
delivered thereto to one of two parison moulds of the
10 section.

 The first illustrative gob distributor comprises
a casing 10 which is mounted on two parallel guide rods 12,
one above the other, of the machine. The guide rods 12
extend transversely of the sections of the machine and the
15 casing 10 is movable along the guide rods 12 by the
operation of moving means to be described.

 The first illustrative gob distributor also
comprises two gob-directing scoops 14 and 16, one for each
gob. Each scoop 14 and 16 has a tubular upper end 18
20 which extends vertically through the casing 10 and a trough-
like lower end (one visible in Figure 4) below the casing
10 which is arranged to be aligned with a gob guide of any
of the sections. The arrangement is such that a gob
entering the upper end 18 of a scoop 14 or 16 from above
25 the casing 10 passes into the lower end of the scoop which
is curved in a vertical plane. The gob follows the curve
of the scoop and is delivered to the gob guide with which
the scoop is aligned.

 The first illustrative gob distributor also
30 comprises positioning means operable to turn each scoop 14
and 16 about a respective vertical axis passing centrally
through the upper end 18 thereof to thereby align the lower
end of the scoop 14 or 16 with the gob guides. The

35

6.

1 positioning means comprises an externally-toothed ring-shaped gear 20 associated with each scoop 14 or 16, the scoop 14 or 16 being mounted on the gear 20 with the upper end 18 of the scoop passing centrally through the gear 20.
5 The gears 20 are within the casing 10 and each is arranged to turn about the vertical axis of the scoop 14 or 16 to align the lower end of the scoop with the gob guides.

The positioning means of the first illustrative gob distributor also comprises an internally-toothed ring-shaped gear 22 which is mounted within the casing 10 on a circular bearing 24 for turning about a vertical axis midway between the vertical axes of the scoops 14 and 16. The gear 22 surrounds the gears 20 and meshes with both of them, the scoops 14 and 16 passing through the gear 22. The
15 gear 22 is arranged to drive each gear 20 about its respective vertical axis.

The positioning means of the first illustrative gob distributor also comprises a D.C. servo-motor 26 which is mounted on the casing 10 on the opposite side of the
20 guide rods 12 to the gears 20 and 22. The servo-motor 26 is arranged to turn the gear 22 about its vertical axis through selected angles in response to control signals from control means thereof (not shown) so that the lower end of each scoop 14 and 16 is aligned with a gob guide of each
25 section in turn in a selected sequence. An output shaft of the servo-motor 26 is coupled by a coupling 28 to an input shaft 30 of a gear box 32 which contains two bevel gears 34 (see Figure 2) which turn the drive through 90° and has an output shaft 36 on which a gear 38 is mounted
30 which is meshed with the gear 22 so that operation of the motor 26 turns the gear 22 and therefore the scoops 14 and 16.

The scoop 14 is closer to the guide rods 12 than is the scoop 16 and is nearer to the sections of the machine.

35

9.

1 The scoop 16 is therefore made longer than the scoop 14 in
order to reach the gob guides. For this reason, the scoop
16 requires to be turned through smaller angles than does
the scoop 14. To enable this to occur, the gear 20 on
5 which the scoop 16 is mounted is larger and has more teeth
than the gear 20 on which the scoop 14 is mounted so that,
for a given movement of the gear 22, the scoop 16 turns
through a smaller angle than the scoop 14. Figure 3 shows
the gears 20, 22 and 38 diagrammatically with the size
10 difference between the two gears 20 exaggerated and arrows
showing the direction of turning of the gears for one move-
ment of the scoops 14 and 16.

The first illustrative gob distributor also
comprises moving means operable in the operation of the
15 machine to move the casing 10 and therefore the scoops 14
and 16, the gears 20, 22 and 38 and the servo-motor 26
between a first position thereof in which the upper end
18 of each scoop 14 and 16 is vertically below a gob-
releasing orifice (not shown) of a feeder forehearth and
20 a second position thereof in which the upper end of each
scoop is not vertically below such an orifice. Figure 1
shows the distributor in the first position thereof in
which gobs falling from the orifices fall into the scoops
14 and 16 and are distributed to the sections. The second
25 position is reached by a movement of the distributor along
the guide rods 12 (downwards viewing Figure 1). The moving
means comprises a piston 40 formed on the lower guide rod
12 within the casing 10. The casing 10 forms a cylinder
42 which can slide past the piston 40, the arrangement
30 being such that, when fluid under pressure is introduced
into the cylinder 42, the whole casing 10 slides along
guide rods 10 on bearings 44. When the distributor is in
its second position, the scoops 14 and 16 do not receive
gobs from the orifices but instead each gob is intercepted
35

10.

1 by an interceptor blade 46 of the distributor associated
with each scoop 14 and 16. The interceptor blades 46
(See Figure 4) are curved in a vertical plane and are
mounted on top of the casing 10 so that they are movable
5 with the scoops 14 and 16 by the operation of the moving
means. The interceptor blades 46 are arranged beside the
scoops 14 and 16 so that, when the distributor is in its
second position, they intercept gobs falling from the
orifices and direct them into a cullet chute (not shown)
10 to the side of the distributor.

The casing 10 forms an oil bath within the gear
22 so that the gears 20, 22 and 38 run in the oil bath.
This arrangement minimises maintenance of the distributor.

The first illustrative gob distributor is used
15 in the aforementioned illustrative method of distributing
gobs. This method comprises positioning the first
illustrative gob distributor in its first position which is
an operative position such that the upper end 18 of each
scoop 14 and 16 is vertically below an associated feeder
20 forehearth orifice so that gobs falling from the orifices
enter the scoops 14 and 16. The method also comprises
operating the positioning means of the distributor to align
the lower end of each scoop 14 and 16 with a gob guide of
each section in a selected sequence so that each scoop 14
25 and 16 directs successive gobs falling from its associated
orifice to the sections in turn. The scoops 14 and 16
are turned by operating the servo-motor and the sequence
of sections is selected by the control signals to the servo
motor.

30 For example, if the illustrative method is
utilised to distribute gobs to the sections of a six section
machine, the first pair of gobs falling from the orifices
are delivered to one of the sections (e.g. number 1

35

11.

1 numbering along the machine frame from one end), the servo-
motor 26 is then operated to align the scoops 14 and 16 with
another section (e.g. number 4), the second pair of gobs are
delivered to that section and so on until each section has
5 received a pair of gobs when the delivery is again to the
first section. The order could, for example, be 1, 4, 3, 6,
5, 2 and back to 1.

· In the illustrative method, when one of the
sections is inoperative (e.g. because of a break-down
10 thereof), the moving means of the distributor is used moving
the distributor from its operative position, after each
scoop 14, 16 has delivered a gob to the section immediately
preceding the inoperative section in the sequence, to the
second position thereof in which the upper end 18 of each
15 scoop 14 and 16 is not vertically below its associated
orifice so that the next gob is not delivered to the in-
operative section. Thus, in the example given above, if
section number 3 is inoperative, after gobs have been
delivered to section 4, fluid under pressure is introduced
20 into the cylinder 42 so that the distributor moves to its
second position. Then, although the servo-motor 26 turns
the scoops 14 and 16 to the orientation which would deliver
gobs to section number 3, the gobs are intercepted by the
interceptor blades and go to the cullet chute instead of
25 section number 3. After a gob has fallen from each orifice,
the distributor is returned to its operative position by
introducing fluid under pressure into the cylinder 42 on
the opposite side of the piston 40. The next gobs are then
delivered to the section immediately following the inoperative
30 section in the sequence (number 6 in the example). The
possibility of moving the distributor in this way is dependent
on the distributor being sufficiently low in bulk as is
achieved by the compact structure of the first illustrative
gob distributor. If a section of the machine is inoperative
35

1 for a prolonged period, the control signals to the servo-
motor 26 can be re-programmed so that that section is
omitted from the sequence; this prevents wastage of gobs.

The second illustrative gob distributor shown in
5 Figure 5 and 6 is generally similar in construction and
function to the first illustrative gob distributor except
that it has three scoops and is operable to deliver three
gobs of molten glass to each section of a glassware manu-
facturing machine of the individual section type. The
10 distributor comprises a casing 110 which is mounted on two
parallel guide rods 112, and three gob-directing scoops 114,
115 and 116, one for each gob. Each scoop 114, 115 and
116 has a tubular upper end 118 which extends through the
casing 110 and a trough-like lower end below the casing 110
15 (see Figure 6), the scoops 114, 115 and 116 being curved in
a vertical plane.

The second illustrative gob distributor also com-
prises positioning means operable to turn the scoops 114,
115 and 116 about respective vertical axes to align the lower
20 end of the scoops with gob guides. The positioning means
comprises three externally-toothed ring-shaped gears 120,
one associated with each scoop and on which the scoop is
mounted. The scoops pass through the gears 120 and each
gear 120 is within the casing 110 and arranged to turn about
25 the vertical axis of its scoop. The positioning means also
comprises an internally-toothed ring-shaped gear 122 which is
mounted within the casing 110 on a circular bearing for
turning about a vertical axis mid-way between the vertical
axes of the scoops 114 and 116, which axis coincides with the
30 vertical axis of the scoop 115. The gear 122 surrounds the
gears 120 and meshes with two of them (those associated with
the scoops 114 and 116). The positioning means also com-
prises an idler gear 123 which meshes with the gear 120

13.

1 associated with the scoop 115 and with a drive gear 138
of the gear 122. For reasons explained in relation to
the first gob distributor, the gear 120 associated with
the scoop 116 has a larger diameter and more teeth than the
5 gear 120 associated with the scoop 115 which has a larger
diameter and more teeth than the gear 120 associated with
the scoop 114. The gear 122 is arranged to drive two of
the gears 120 about their respective vertical axes while
the drive gear 138 drives the third gear 120 about its
10 vertical axis through the idler gear 123.

The positioning means of the second illustrative
gob distributor also comprises a D.C. servo-motor 126
arranged to turn the gear 138 and therefore the gear 122.
An output shaft of the motor 126 is coupled by a coupling
15 128 to an input shaft 130 of a gear box 132 which turns
the drive through 90° and has an output shaft on which the
gear 138 is mounted.

The second illustrative gob distributor has moving
means identical to that of the first illustrative gob
20 distributor for moving the distributor along the guide rods
112. The moving means comprises a cylinder 142 indicated
in Figure 6. Three interceptor blades 146 are mounted on
the casing 110 and act in identical manner to the interceptor
blades 46 of the first illustrative gob distributor.

25 The second illustrative gob distributor can be
used in the illustrative method of gob distributing when
three gobs are to be delivered to each section.

30

35

1 Claims:

1 1. A gob distributor for a glassware manu-
facturing machine of the individual section type operable
5 to deliver at least one gob of molten glass to each
section of the machine in turn in a selected sequence,
each section having a gob guide for each gob delivered
thereto in the sequence arranged to guide a gob delivered
thereto to a mould of the section, the distributor
10 comprising at least one gob-delivering scoop (14; 114)
having an upper end (18; 118) arranged to receive a gob
and a lower end arranged to be aligned with a gob guide
of any of the sections so that the scoop delivers a gob
received thereby to the gob guide, and positioning means
15 operable to turn the scoop about a vertical axis passing
through the upper end thereof thereby aligning the lower
end of the scoop with the gob guides, characterised in
that the positioning means (20, 22; 120, 122, 123)
comprises an externally-toothed ring-shaped gear (20; 120)
20 on which the scoop (14; 114) is mounted, the scoop
passing through the gear and the gear being arranged to
turn about the vertical axis of the scoop to align the
lower end of the scoop with the gob guides, an internally-
toothed ring-shaped gear (22; 122) through which the scoop
25 passes and which is arranged to turn about a vertical axis
to drive the externally-toothed gear (20; 120) about its
vertical axis, and a servo-motor (26; 126) arranged to
turn the internally-toothed gear about its vertical axis
through selected angles so that the lower end of the
30 scoop is aligned with a gob guide of each section in turn
in the selected sequence.

2. A gob distributor according to claim 1,
characterised in that the distributor comprises a further
35 gob-directing scoop (16; 116) mounted on an externally-

1 toothed gear (20; 120) which is meshed with the
internally-toothed gear (22; 122) to be driven thereby
to deliver a further gob to each section in the
selected sequence.

5

3. A gob distributor according to claim 2,
characterised in that the externally-toothed gear
(20; 120) on which one of the scoops (16; 116) is mounted
is larger and has more teeth than the gear on which the
10 other scoop (14; 114) is mounted so that, for a given
movement of the internally-toothed gear (22; 122), the
first-mentioned scoop turns through a smaller angle than
the other scoop.

15

4. A gob distributor according to either one
of claims 2 and 3, characterised in that the distributor
comprises a third gob-directing scoop (115), the third
scoop being between the other two scoops (114, 116) and
being mounted on an externally-toothed ring-shaped gear
20 (120), and the externally-toothed gear (120) on which the
third scoop is mounted is driven by an idler gear (123)
which is driven by a drive gear (138) of the internally-
toothed gear (122).

25

5. A gob distributor according to claim 4,
characterised in that the three externally-toothed
gears (120) are of different sizes and have different
numbers of teeth so that, for a given movement of the
internally-toothed gear (122), the scoops (114, 115, 116)
30 turn through different angles.

6. A gob distributor according to any one of
claims 1 to 5, characterised in that the distributor
comprises moving means (40, 42; 142) operable in the
35 operation of the machine to move the or each scoop

1 (14, 16; 114, 115, 116) the gears (20, 22; 120, 122, 123)
and the servo-motor (26; 126) between a first position
thereof in which the upper end of the or each scoop
is vertically below a gob-releasing orifice of a feeder
5 forehearth and a second position thereof in which the
upper end of the or each scoop is not vertically below
such an orifice.

7. A gob distributor according to claim 6,
10 characterised in that the distributor also comprises
an interceptor blade (46; 146) associated with the or
each scoop (14, 16; 114, 115, 116) and movable with the
scoop of the moving means (40, 42; 142), the interceptor
blade being effective in the second position to
15 intercept a gob falling from the orifice and direct it
into a cullet chute.

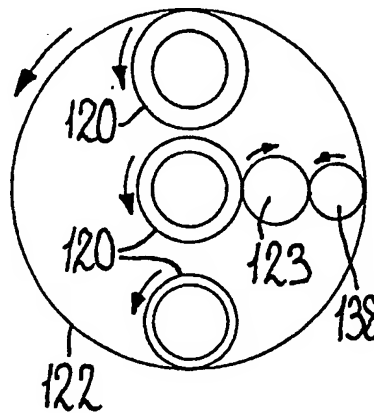
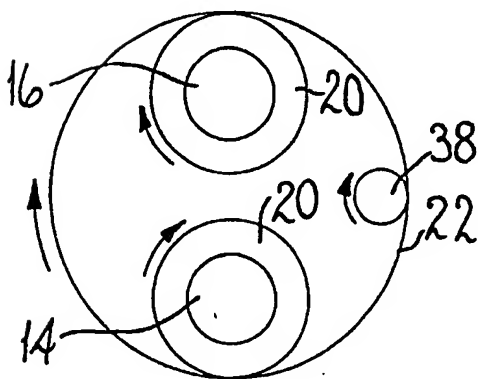
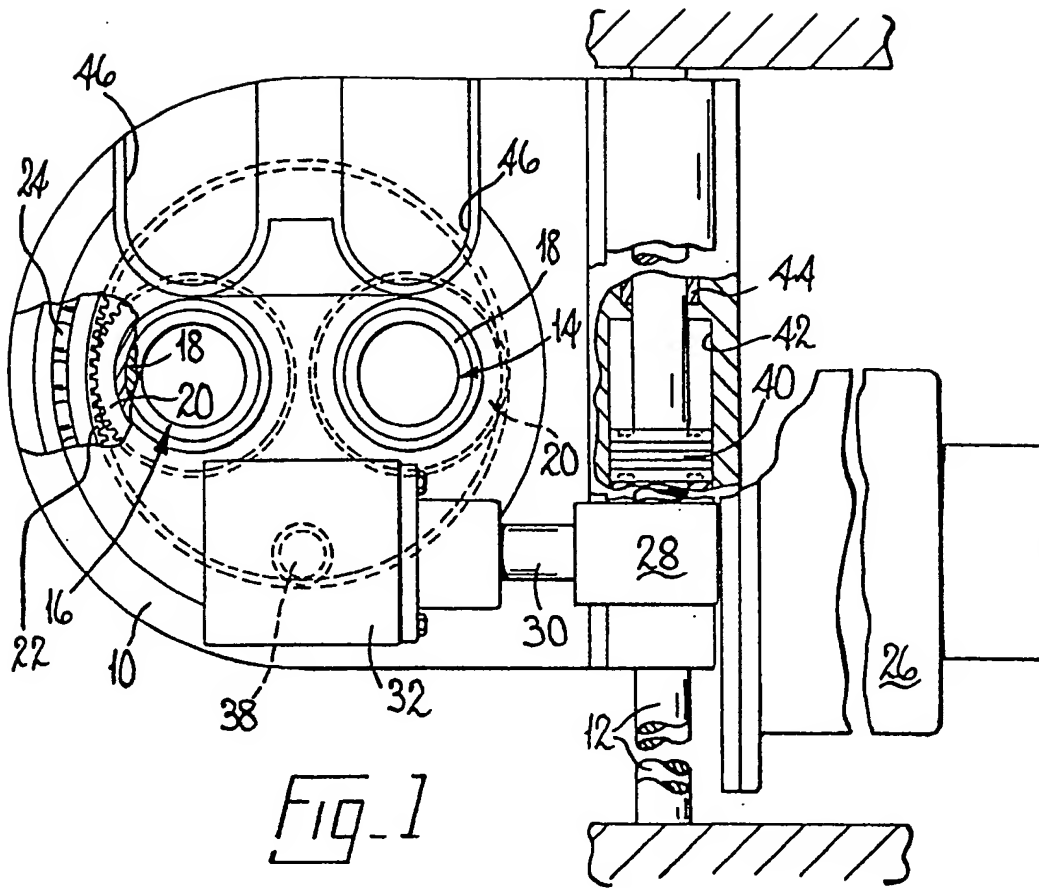
8. A gob distributor according to any one of
claims 1 to 7, characterised in that the externally
20 and internally-toothed gears (20, 22; 120, 122) are
contained in an oil bath of the distributor.

9. A method of distributing gobs to the
sections of a glassware manufacturing machine of the
25 individual section type, characterised in that the
method comprises positioning a gob distributor in an
operative position such that the upper end of each scoop
of the distributor is vertically below an associated
feeder forehearth orifice, the gob distributor comprising
30 at least one gob-delivering scoop (14; 114) having an
upper end (18; 118) arranged to receive a gob and a lower
end arranged to be aligned with a gob guide of any of
the sections so that the scoop delivers a gob received
thereby to the gob guide, and positioning means operable

35

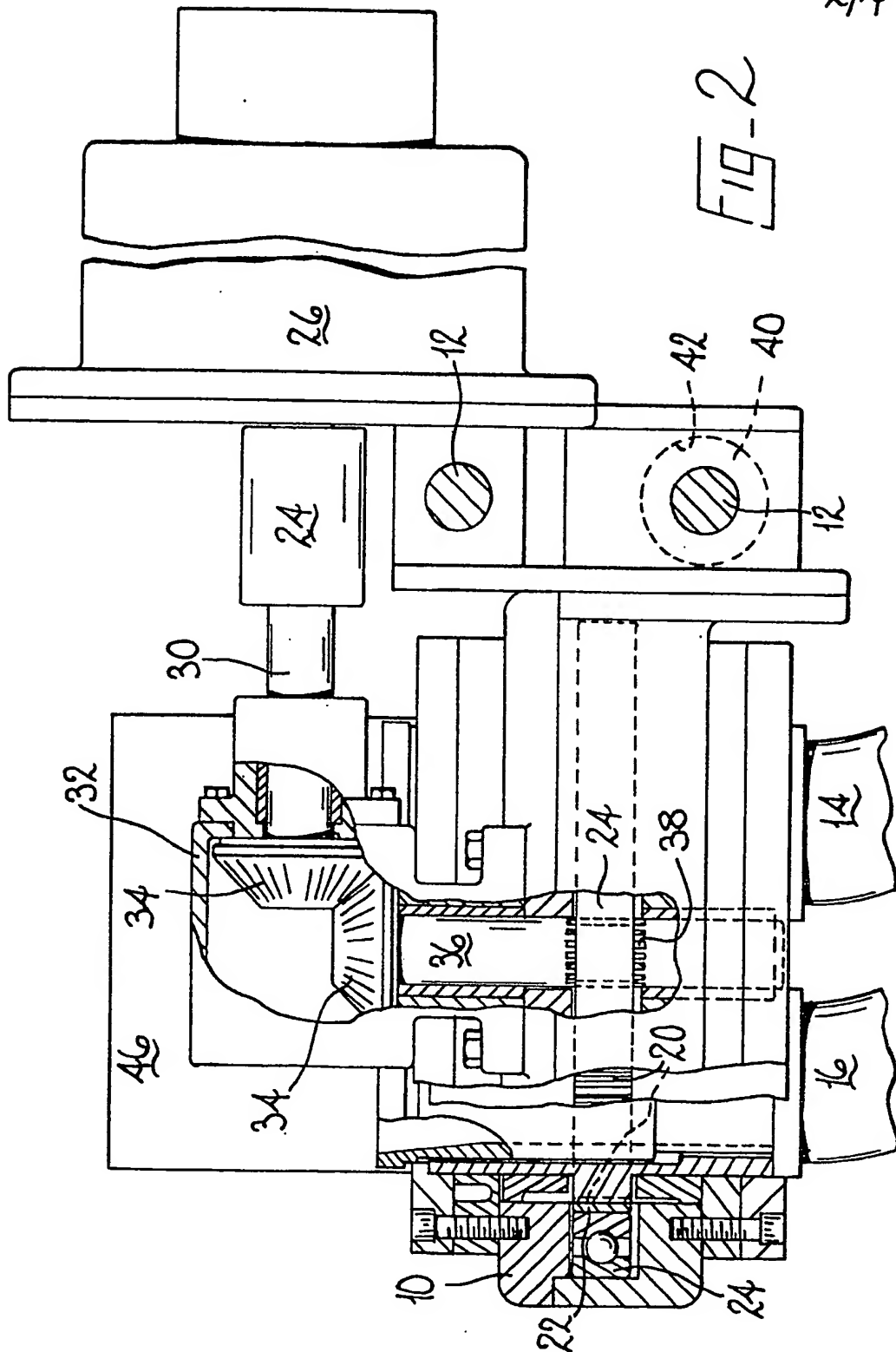
1 to turn the scoop about a vertical axis passing
through the upper end thereof thereby aligning the
lower end of the scoop with the gob guides, characterised
in that the positioning means (20, 22; 120, 122, 123)
5 comprises an externally-toothed ring-shaped gear (20; 120)
on which the scoop (14; 114) is mounted, the scoop pass-
ing through the gear and the gear being arranged to turn
about the vertical axis of the scoop to align the
lower end of the scoop with the gob guides, an internally-
10 toothed ring-shaped gear (22; 122) through which the
scoop passes and which is arranged to turn about a vertical
axis to drive the externally-toothed gear (20; 120)
about its vertical axis, and a servo-motor (26; 126)
arranged to turn the internally-toothed gear about its
15 vertical axis through selected angles so that the lower
end of the scoop is aligned with a gob guide of each
section in turn in the selected sequence, operating the
positioning means of the distributor to align the lower
end of each scoop with a gob guide of each section in a
20 selected sequence so that each scoop directs successive
gobs falling from its associated orifice to the sections
in turn, and, when one of the sections is inoperative,
moving the distributor from its operative position, after
each scoop has delivered a gob to the section immediately
25 preceding the inoperative section in the sequence, to a
position in which the upper end of each scoop is not
vertically below its associated orifice so that the next
gob is not delivered to the inoperative section, and
returning the distributor to its operative position, after
30 a gob has fallen from the orifice, so that the next gob
is delivered to the section immediately following the
inoperative section in the sequence.

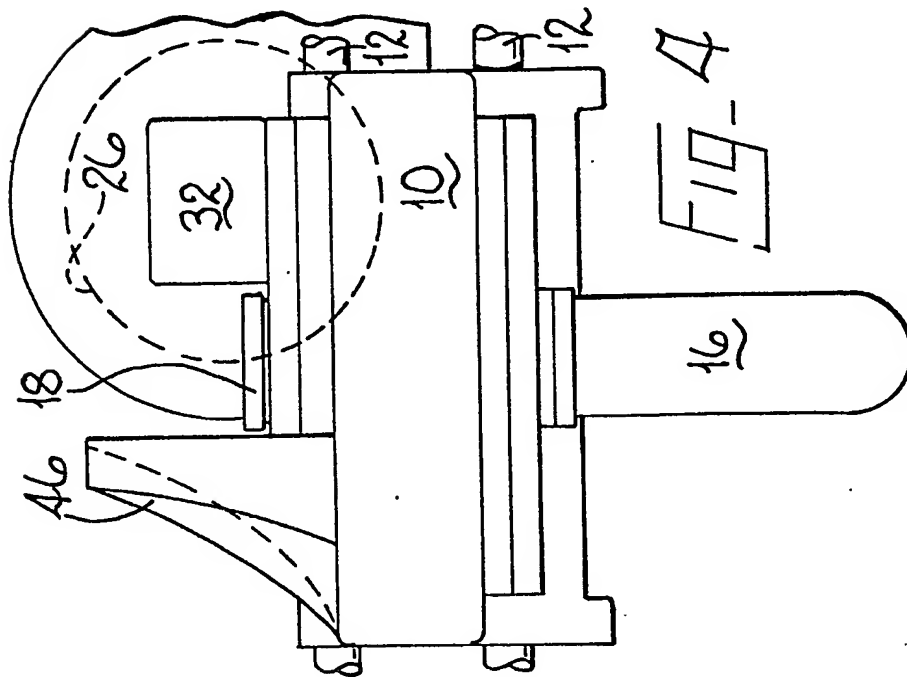
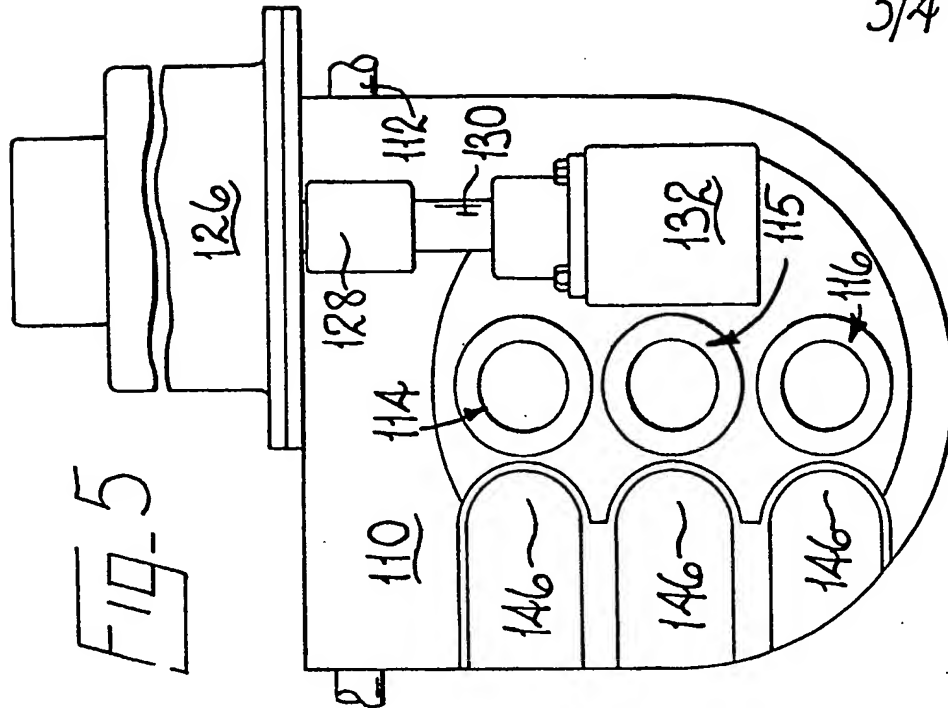
1/4



0133775
2/4

FIG-2





4/4

